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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

ODOM, CURTIS B

ART UNIT PAPER NUMBER

2634

DATE MAILED: 12/30/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary**Application No.**

09/590,955

Applicant(s)

JOHNSON ET AL.

Examiner

Curtis B. Odom

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 August 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 2-7, 10-16 and 25-33 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 2-6, 10-16 and 25-28 is/are allowed.
- 6) ☒ Claim(s) 7, 29, 30 and 33 is/are rejected.
- 7) ☒ Claim(s) 31 and 38 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 June 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 7 and 29 are rejected under 35 U.S.C. 102(b) as being anticipated by Rorden (U.S. Patent No. 3, 614, 630).

Regarding claim 7, Rorden discloses a method of frequency translating and phase shifting and electromagnetic signal, comprising:

receiving an electromagnetic signal (Fig 4, element 50, column 2, lines 44-47 and column 5, lines 35-38), wherein a radiofrequency signal is an electromagnetic signal;

generating (Fig. 4, blocks 56-59, column 5, line 35-column 6, line 9 and column 8, lines 32-38) a control signal having a plurality of pulses that are phase-shifted relative to a reference phase;

sampling (Fig. 4, block 53, column 8, line 32-38) the electromagnetic signal according to the control signal, resulting in a frequency translated electromagnetic signal that is phase shifted (Fig. 4, block 56, column 5, lines 35-70) according to the phase shift of the pulses of the control signal;

wherein the plurality of pulses have pulse widths (column 5, lines 71-75);

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wherein the generating step comprises:

receiving (Fig. 4, block 57, column 5, lines 35-53) a local oscillator signal having a first signal shape;

changing (Fig. 4, block 56, phase shifting) the first signal shape of the local oscillator signal to a second signal shape, resulting in a shaped (phase shifted) local oscillator signal; and

generating (Fig. 4, block 59, column 5, lines 54-70, wherein the pulse generator is the described monostable multivibrator) a pulse with the shaped local oscillator signal exceeds a threshold (zero crossover), whereby the reference phase corresponds to a reference signal shape and thereby said phase shift of said control signal is determined by a difference (magnitude and sign of phase difference) between the shaped local oscillator signal and the reference signal shape.

Regarding claim 29, the claimed method includes features corresponding to subject matter mentioned in the above rejection of claim 7, which is applicable hereto.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 30 and 33 and are rejected under 35 U.S.C. 103(a) as being unpatentable over Rorden (U. S. Patent No. 3, 614, 630).

Regarding claim 30, Rorden discloses a system (Fig. 4) for frequency translating an electromagnetic signal (wherein a radiofrequency signal is an electromagnetic signal) to generate a frequency translated output signal that is phase shifted relative to a reference phase, comprising:

a pulse generator (Fig. 4, block 59, column 5, lines 54-70, wherein the pulse generator is the described monostable multivibrator) that is controlled by a local oscillator signal (Fig. 4, block 57, column 5, lines 35-53), wherein said pulse generator triggers and generates a pulse when the local oscillator signal exceeds a threshold (zero crossover);

a sampling module (Fig. 4, block 53, column 8, lines 32-38) controlled by pulses from the pulse generator, wherein the sampling module samples the electromagnetic signal according to the pulses, resulting in the frequency translated output signal; and

means (Fig. 4, block 56, column 5, lines 54-70) for varying a time (plus or minus 100 or 200 mircroseconds) that the local oscillator signal exceeds the threshold of the pulse generator, and thereby phase shifting the frequency translated output signal;

wherein the pulses have pulse widths (column 5, lines 71-75).

Rorden does not disclose the sampling module is a switch. However, it would have been obvious to one skilled in the art at the time the invention was made that switches are commonly used to sample signals by means of a control signal. Using switches would produce a sampled signal in the same manner as the sampler of Rorden. Thus, using switches as samplers is deemed a design choice and does not constitute patentability.

Regarding claim 33, which inherits the limitations of claim 33, Rorden further discloses the means for varying comprises a means for changing a shape of the local oscillator signal (Fig. 4, block 56, column 5, lines 54-70).

Allowable Subject Matter

5. Claims 2-6 and 25-28 are allowable over prior art references because related references do not disclose changing the frequency of a signal by sampling a signal according to a control signal containing a plurality of pulses, wherein the control signal is generated by level shifting or delaying a local oscillator signal and generating a pulse when the local oscillator signal exceeds a threshold, wherein the phase shift of the pulses is determined by the level shifting or delay.

Claims 10-16 are allowable over prior art because of the reasons stated above for claims 2-6, but also include integrating the samples and generating the control shaping the local oscillator signal.

6. Claims 31 and 32 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Bazarjani et al. (U. S. Patent No. 5, 982, 315) discloses using switches to sample signals.


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8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Curtis B. Odom whose telephone number is 571-272-3046. The examiner can normally be reached on Monday- Friday, 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Chin can be reached on 571-272-3056. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Curtis Odom
December 23, 2004



STEPHEN CHIN
SUPERVISORY PATENT EXAMINER
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